(19) Japanese Patent Office (JP)

(11) Unexamined Patent Application (Kokai) No.

Unexamined Patent Gazette (A)

Sho 52[1977]-103283

(51) Int. Cl.[2]	Classification Symbols	(52) Japanese Classification	Internal Office Registration Nos.	(43) Date of Publication:
B 29 D 23/03	109	133 B 01	7312-38	Number of Inventions: 2
B 65 D 1/02		25(5) G2	6624-37	Examination request: Not requested
B 65 D 1/42				

(Total of 5 pages)

(54) Title of the Invention: Polyethylene Terephthalate Resin Bottle and Bottle Molding Method

(21) Application No.: Sho 51[1976]-18598

(22) Date of Filing: February 23, 1976

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SPECIFICATION

1. Title of the Invention

Polyethylene Terephthalate Resin Bottle and Bottle Molding Method

2. Claims

(1) A polyethylene terephthalate resin bottle, formed by fixing, so that it cannot slide with respect to the main body **1**, a threading member **2** formed from metal or a synthetic resin other than the polyethylene terephthalate resin that forms the threads **2a** on the outer circumference of the cylinder onto a neck part **1b** formed between a trunk part **1a** formed by biaxial draw blow-

molding of the polyethylene terephthalate resin main body **1** and a rim part **1c** that protrudes so that it is fairly thick in the outward direction, at a height equivalent with a neck part **1b**.

(2) A method for manufacturing bottles according to claim 1, wherein a threading member **2** that is formed with an aspect that juts out towards the rim part **1c** of said piece **1'** is fitted on a piece **1** having the shape of a bottomed linear cylinder that is to be molded into the main body **1** by means of biaxial draw blowing, whereupon the piece **1'** is biaxially draw blow-molded to produce the main body **1** with said threading member **2** as part of the mold.

3. The bottle according to claim 1, wherein the things **1b** that are formed on the outer circumferential surface of the neck part **1b** fit into the vertical grooves **2b** of the desired number formed on the inner circumferential surface of the threading member **2**, and the threading member **2** is assembled onto the main body **1** while preventing slippage.

4. The bottle according to claim 1, wherein part of the neck part **1b** is inserted by means of blow molding into the prescribed number of vertical groove-shaped depressions **2c** formed on the inner circumferential surface of the threading member **2**, and the threading member **2** is affixed to the main body **1** so that it cannot slip.

5. The bottle according to claim 1, wherein the joining base part of the neck part **1b** and the trunk part **1a** is inserted by means of blow molding into the lower bottom end **2d** of the threading member **2** formed with depressions and protrusions in the form of a wave, and the threading member **2** is assembled onto the main body **1** in a manner such that slipping cannot occur.

3. Detailed Description of the Invention

The present invention relates to a polyethylene terephthalate resin bottle and a bottle molding method. In additional detail, the present invention relates to a polyethylene terephthalate resin bottle that is formed by injection molding to produce a provisional bottomed linear cylindrical piece, whereupon this piece is subjected to biaxial draw blow-molding. The single mold throughput is increased because threads are not formed on the piece and, in addition, insufficient mechanical strength in the neck region which experiences little biaxial draw molding

is improved. Moreover, degradation in external appearance of the neck region that tends to whiten over time is shielded from the outside.

An additional objective is to produce a simple and reliable assembly of the threading member and main body by means of biaxial draw molding of the piece, with the threading member as a part of the molding mold.

Polyethylene terephthalate resin has extremely high transparency and the surface also has high gloss. In addition, the material has superior gas barrier properties with respect to oxygen, carbon dioxide gas, and the like. Because the material does not contain plasticizers, stabilizers, or other additives, there are no problems with regard to health, and a material can be obtained that has high stability as well as superior content-resistant physical properties and fragrance retention.. In addition, the material does not generate toxic gases during combustion, and also has many superior characteristics such as low heat of incineration. However, on the other hand, the material has extremely low viscosity when dissolved, and when allowed to cool to near 140°C, the material becomes cloudy. Consequently, if sufficient biaxial draw molding is not carried out, then sufficient mechanical strength will not be manifested and the material will whiten when in contact with alcohol and the like. In addition, molding will become extremely difficult and the material will have properties such as degraded permeation characteristics.

Molding of a molded product using this polyethylene terephthalate resin is broadly restricted to the aforementioned polyethylene terephthalate resin substances, and the most suitable molding method is injection blow-molding methods.

A simple description of the injection molding method will first be presented. A primary molded product piece is first generated by means of irradiation molding (injection molding). By this means, a piece is formed for use as the primary molding, and the temperature of this piece is then cooled to a temperature that is suitable for blow-molding, at which point the piece is biaxial draw blow-molded to mold the final product.

In this connection, there are two methods for attaching the threading member to the neck-shaped external circumferential surface of the polyethylene terephthalate resin derivative formed by injection blow molding. One method is a means in which molding of the piece onto the neck

of the piece to be molded by injection molding occurs simultaneous to molding of the piece. A second method is a means whereby the material is molded to the neck section by means of blow molding occurring at the time of blow molding. However, the means whereby threads are molded onto the neck of the piece has poor throughput using a single mold. In addition, handling is troublesome because production of the metal devices for molding pieces is complicated. Moreover, the wall thickness of the piece varies greatly over local areas, which has the disadvantage of making it difficult to employ low-temperature control (cooling procedure). Moreover, with the means whereby the threading is molded onto the neck part by means of blow molding of the piece, extremely high blow pressures are required for molding the threading. Consequently, the pressure source is not economical, and a molding apparatus that can withstand these pressures must be used. Consequently, a large-scale molding apparatus is used as the size of the molded product increases and, for example, even if the blow pressure is increased, it is not necessarily the case that the threading will be accurately and reliably molded. Moreover, there is the disadvantage that the rate of generation of failed products increases, among other problems.

The present invention was designed with the aim of resolving all of the above problems with polyethylene terephthalate resin bottles that have threading on their necks and is a bottle wherein a threading member formed as a cylindrical shape from metal or a suitable synthetic resin other than polyethylene terephthalate resin is mounted and fixed so that it cannot slip. The present invention also relates to a method whereby this bottle can be molded more simply.

The present invention is described in accordance with the figures that present working examples.

The bottle pertaining to the present invention is constituted by (referring to Figure 1) a main body **1** that is formed by biaxial draw blow-molding of a piece **1'**, and a threading member **2** that has been fitted and fixed onto the neck part **1b** of this main body **1** so that it cannot slip.

The main body **1** is formed from a rim part **1c** that protrudes outward and is comparatively thick-walled, and thus forms a base whereby the piece **1'** can be fixed on the mold device at the time the piece **1'** is subjected to biaxial draw-molding; a neck part **1b** that serves as the assembly part for the threading member **2** that is connected with the bottom of the rim part **1c**; as well as a trunk part **1a** that is formed by biaxial draw-molding, and constitutes the

essential parts of the container of the main body **1**. The neck part **1b** can expand and contract in an axial direction along the body **1**, but it is not necessarily the case that expansion and contraction occur in the radial direction.

The threading member **2** that is fitted and fixed so that it cannot slip on the neck part **1b** of the main body **1** is produced by using a metal or synthetic resin other than polyethylene terephthalate resin, is at the same height as the neck part **1b**, and is cylindrical in shape with the threads **2a** attached to the external circumference.

Thus, the inner diameter of this threading member **2** is not smaller than the outer diameter of the neck part **1b** of the piece **1'** with the shape of a bottomed linear cylinder.

Molding of bottles having this type of structure is carried out in the sequence indicated below.

(Refer to Figure 2 and Figure 3 below) The threading member **2** that has a cylindrical shape is fitted, until it hits against the rim part **1c**, onto the main body part of the piece **1'** from the bottom of the piece **1'** made from polyethylene terephthalate resin having a bottomed linear cylindrical shape with a rim part **1c** formed on the external periphery of the opening.

Fitting and assembly of the threading member **2** with respect to the piece **1'** may be carried out after assembly of the piece **1'** onto the molding apparatus. For example, after fitting and assembly of the threading member **2** onto the piece **1'**, the assembly of this piece **1'** and threading member **2** may be assembled onto the mold apparatus.

In this manner, the piece **1'** that has been assembled with the threading member **2** is mounted on the mold apparatus by means of the rim part **1c** or via the threading member 2, whereupon the piece **1'** is subjected to biaxial draw molding in a condition whereby the threading member **2** is used as part of the mold. The member is thus molded onto the main body **1**, thereby molding the bottle.

Specifically, an assembly in which the threading member **2** cannot be separated from the main body **1** is achieved by means of subjecting the main body **1** of the piece **1'** to biaxial draw molding.

There are various means whereby an assembly is produced in which the threading member **2** does not slip with respect to the main body **1**, but typical examples of these means will be discussed below.

With the first means (refer to Figure 4), a constitution is produced in which a prescribed number of vertical grooves **2b** are cut on the inner circumference of the threading member **2**, and vertical lines **1b'** that fit perfectly with the vertical grooves **2b** when the threading member **2** is mounted on the piece **1'** are formed on the outer circumferential surface of the neck part **1b** of the piece **1'**.

With this type of structure, the inner diameter of the threading member **2** is nearly the same diameter as the neck outer diameter **1b**. When the threading member **2** is fit onto the piece **1'**, it is desirable for this to occur so that the vertical lines **1b'** and the vertical grooves **2b** fit together.

In Figure 2 (refer to figure 5 and figure 6), depressions **2c** are formed that have nearly the same shape as the vertical grooves on the inner circumferential surface of the threading member **2**. At the time of biaxial draw molding of the piece **1'**, the neck part **1b** is also drawn and molded in the radial direction. A constitution thus is produced in which part of the neck part **1b** is cavity-molded in the depression part **2c** by means of this draw molding.

With this constitution, the inner diameter of the threading member **2** may be made to be a certain amount greater than the external circumference of the neck part **1b** of the piece **1'**.

This is because there is no contact of the threading member **2** with the neck part of the piece **1'** at the time of biaxial draw molding of the piece **1'**, and thus the mechanical strength of the neck part **1b** of the piece **1'** is increased by biaxial drawing carried out in the same manner as with the other parts.

Thirdly, although the bottom margin **2d** of the threading member **2** (refer to Figure 7) is made in the form of a wave whereby there are upwards and downwards undulations, when the piece **1'** with the threading member **2** as part of the mold is subjected to biaxial draw molding, the connection base between the trunk part **1a** and the neck part **1b** is molded along the bottom end margin **2d**, and thus a constitution is produced in which the threading member fits together

with the bottom end margin **2d** where the connection base between the trunk part **1a** and the neck part **1b** has been molded.

With this structure, there are no problems concerning whether the inner diameter of the threading member **2** is equivalent to or greater than the external diameter of the neck part **1b** of the piece **1'**, or whether the neck part **1b** is subjected to biaxial draw molding. The main body **1** that is fit together with the bottom end margin **2d** is the connection base end of the neck part **1b** and the trunk part **1a** that are formed by biaxial draw molding and thus is endowed with sufficient mechanical strength. Consequently, the non-slip assembly strength of the threading member **2** with respect to the main body **1** is favorable.

It goes without saying that the wall thickness of the threading member **2** is equivalent to the protrusion amount of the rim part **1c** outwards, or is larger than this protrusion amount.

In addition, relative to the constitution presented in Figure 4, the constitutions shown in Figure 5 and Figure 6 have the problem that high pressure is necessary for biaxial draw molding of the neck part **1b**. However, these constitutions also produce superior action effects in regard to mechanical strength of the bottle body, because the neck part **1b** is biaxially drawn and molded.

In addition, regarding the constitution indicated in Figure 7, a continuous wave shape was produced with the working examples shown in the figures, but it is not necessary for the undulating regions of the bottom end margin **2d** to have the shape of a continuous wave, and numerous undulations may be formed as desired along the region.

However, it is necessary to carry out molding using a constitution in which the undulations occur are at sufficient angles

As is clear from the above descriptions, the present invention has a constitution in which a threading member **2** that has been molded from an appropriate material is used as the neck part **1b** for a main body **1** that has been produced by biaxial draw molding of polyethylene terephthalate resin. Threads are provided on the outer circumferential surface of the neck part **1b** of the piece **1'**, or because it is not necessary to mold threads on the neck part **1b** by means of biaxial molding of the piece **1'** the molding operation for the piece **1'**, and the main body **1** is

extremely simple. In addition, when the threads are not directly molded in the neck part **1b**, strong thread binding can be obtained without damage to the main body **1**. In addition, the neck part **1b** that has inferior transparency relative to the trunk part **1a** is covered with the threading member 2, and thus it is possible to prevent degradation of the external appearance of the bottle. Moreover, it is also possible to mold numerous pieces **1'** using a single mold, and the material for the threading member **2** can be selected completely freely. In addition, the present invention has numerous other superior actions and effects related to polyethylene terephthalate resin bottles, for example, that the non-detachable assembly of the threading member **2** on the main body **1** is achieved simultaneous to biaxial draw molding of the piece **1'**.

4. Brief Description of the Drawings

Figure 1 is a vertical cross-sectional diagram showing a working example of the constitution of the polyethylene terephthalate resin bottle pertaining to the present invention. Figure 2 and Figure 3 are essential cross-sectional diagrams showing part of the process that indicates the molding sequence of the bottle. Figure 2 is a diagram showing conditions prior to assembly of the threading member on the piece. Figure 3 shows the assembled state of the threading member with respect to the piece.

Figures 4 to 7 are diagrams showing the assembled constitution that cannot slip on the neck of the threading member. Figure 4 is an essential horizontal cross-sectional diagram showing a constitution in which vertical lines that have been provided as protrusions on the neck part of the piece fit into grooves cut on the inner circumferential surface of the threading member. Figure 5 and Figure 6 are essential horizontal cross-sectional diagrams showing a constitution in which parts of the neck region have cavitated in cavities formed on the inner circumferential surface of the threading member. Figure 5 shows the condition prior to draw molding of the neck region, and Figure 6 shows the condition after drawing the neck part.

Figure 7 is an essential plan view of a structure in which undulations are formed at the lower end margin of the threading member part of the main body, where part of the main body fits together with the undulations.

Key:

1	Main body
1'	Piece
1a	Trunk part
1b	Neck part
1c	Mouth end part
2:	Threading member
2a	Threads
2b	Vertical grooves
2c	Depression
2d	Bottom end margin

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Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

⑲日本国特許庁　　⑪特許出願公開

公開特許公報　　昭52—103283

⑤Int. Cl².	識別記号	⑤日本分類	庁内整理番号	⑬公開　昭和52年(1977)8月30日
B 29 D 23/03	109	133 B 01	7312—38	
B 65 D 1/02		25(5) G 2	6624—37	発明の数　2
B 65 D 1/42				審査請求　未請求

（全 5 頁）

⑭ポリエチレンテレフタレート樹脂製壜体とこの壜体の成形方法

⑳特　　願　昭51—18598
㉒出　　願　昭51(1976)2月23日
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明　細　書

1. 発明の名称

ポリエチレンテレフタレート樹脂製壜体とこの壜体の成形方法

2. 特許請求の範囲

(1) ポリエチレンテレフタレート樹脂製本体(1)の2軸延伸ブロー成形された胴部(1a)と外方にやや肉厚となつて突出した口縁部(1c)との間に形成される首部(1b)~~との間に形成される首部(1b)~~、該首部(1b)と12字等しい高さでの円筒体で外周面に螺条(2a)を形成したポリエチレンテレフタレート樹脂以外の合成樹脂もしくは金属製の螺子部材(2)を本体(1)に対し空転不能に固定して成るポリエチレンテレフタレート樹脂製壜体。

(2) 2軸延伸ブローによつて本体(1)に成形される有底面線円筒形状をしたピース(1')に、該ピース(1')の口縁部(1c)に突当る姿勢で螺子部材(2)を嵌装した後、該螺子部材(2)を金型の一部としてピース(1')を本体(1)に2軸延伸ブロー成形する特許請求の範囲(1)に示した壜体の成形方法。

(3) 螺子部材(2)の内周面に形成された所望数の縦溝(2b)に首部(1b)の外周面に附形された縦条(1d)を嵌合させて本体(1)に対し螺子部材(2)を空転不能に組付けた特許請求の範囲(1)に示した壜体。

(4) 螺子部材(2)の内周面に形成された所望数の縦溝状凹部(2c)に首部(1b)の一部をブロー成形により嵌入させて本体(1)に対し螺子部材(2)を空転不能に組付けた特許請求の範囲(1)に示した壜体。

(5) 波形に凹凸をもつて成形された螺子部材(2)の下端縁(2d)に胴部(1a)の首部(1b)との連接基部をブロー成形により嵌入させて本体(1)に対し螺子部材(2)を空転不能に組付けた特許請求の範囲(1)に示した壜体。

3. 発明の詳細な説明

本発明は、ポリエチレンテレフタレート樹脂製壜体とこの壜体の成形方法に関するもので、さらに詳言すれば、一旦有底面線円筒形状のピースにインジエクション成形した後、このピースを2軸延伸ブロー成形して成形されるポリエチレンテレフタレート樹脂製壜体においてピースに螺条を形

成しないことによつて単一金型の個取りを多くした2軸延伸成形のされることが少ない首部の機械的強度の不足を補足しさらに時として白化の起りあい首部の外観劣化を外部から遮断することを目的としたものである。

また、他の目的は螺子部材を成形金型の一部としてピースを2軸延伸成形することによつて螺子部材と本体との内容の結付けを簡単にかつ確実に達成することである。

ポリエチレンテレフタレート樹脂は、きわめて優れた透明性を有し、表面の光沢があり、酸素、炭酸ガス等のガスバリヤー性が優れており、可塑剤、安定剤のような添加剤を含まないので衛生上の問題がなく安全性が高く、耐内容物性及び保香性が優れ、さらに燃焼の際有毒ガスの発生がなくまた燃焼熱量も低い等多くの優れた特性をもつているが、反面溶融されると極めて粘度の低い状態となること、140〔°〕附近で徐冷されると白濁すること、2軸延伸成形されないと充分な機械的強度を発揮しないと共にアルコール等に触れると白化しさらに透明特性が劣化する等の性質をもつているため成形が極めて難しいものとなつていた。

このポリエチレンテレフタレート樹脂による成形品の成形は、上記したポリエチレンテレフタレート樹脂のもつ性質によつて大幅に限定され、インジエクションブロー成形方法が最も適した成形方法となつている。

このインジエクションブロー成形方法を簡単に説明すると、まず射出成形（インジエクション成形）によつて1次成形品としてのピースを成形し、このピースの温度がブロー成形に適合する温度まで冷却された時点でピースを2軸延伸ブローして最終の製品に成形するのである。

所で、インジエクションブロー成形により成形されるポリエチレンテレフタレート樹脂製壜体の首部外周面に螺子を附形するには、インジエクション成形されるピースの首部にピースの成形と同時に成形しておく手段と、ブロー成形時にこのブロー成形によつて首部に成形する手段との2つの手段があるが、ピースの首部に螺子を成形する手段は単一金型におけるピースの個取りを少なくすることになり、またピース成形用の金型装置の構造を複雑として取扱いを面倒とし、さらにピースの肉厚が局部的に大きく変化することによつて温度制御（冷却操作）が難しくなる等の不都合が生じ、またピースのブロー成形によつて首部に螺子を成形する手段は、螺子を成形するためにブロー圧力を極めて大きい値とする必要があるので圧力源が不経済となると共に金型装置をこの圧力に対応したものとしなければならないので、成形品の割には大がかりな金型装置となり、またたとえブロー圧力を大きくしても必ず螺子が正確にかつ確実に成形されるとは限らず、不良品発生の度合が大きくなる等の欠点をもつていた。

本発明は首部に螺子を有するポリエチレンテレフタレート樹脂製壜体における上記した問題点を全て解消すべく創案されたもので、ポリエチレンテレフタレート樹脂製本体の首部にポリエチレンテレフタレート樹脂以外の適当な合成樹脂製もしくは金属製の円筒形状をした螺子部材を空転不能に嵌装固定したものであり、この壜体をより簡単に成形する方法に関するものである。

以下、本発明を実施例を示す図面に従つて説明する。

本発明による壜体は、（以下才1図参照）ピースパを2軸延伸ブロー成形した本体1と、この本体1の首部1Dに空転不能に嵌装固定された螺子部材2とから構成されている。

本体1は、ピースパを2軸延伸成形する際に、ピースパを金型装置に固定する基部となるやや肉厚に外方に突出した口縁部1cと、この口縁部1cの下に連接した螺子部材2の組付け補分となる首部1bと、そして本体1の容器としての要部を形成する2軸延伸成形された胴部1aとから構成されていて、首部1Dは本体1の軸心方向に延伸されるが、半径方向に延伸されるとは限らない。

本体1の首部1Dに空転不能に嵌装固定される螺子部材2はポリエチレンテレフタレート樹脂以外の合成樹脂もしくは金属によつて製作されていて首部1Dと等しい高さを有しかつ外周面に螺条2aを

附形した円筒形状をしている。

そして、この螺子部材2の内径は有底直線円筒形状をしたピースPの首部1bの外径よりも小さいということはない。

このような構造となつた壜体の成形は次の順で行なわれる。

（以下、オ2図およびオ3図参照）口部外周縁に口縁部1cを附形した有底直線円筒形状をしたポリエチレンテレフタレート樹脂製のピースPの底部側から円筒形状をした螺子部材2を口縁部1cに突き当るまでピースPの本体部分に嵌装する。

この螺子部材2のピースPに対する嵌装組付けは、ピースPが金型装置に組付けられた後に行なつても良く、またはピースPに螺子部材2を嵌装組付けした後に、このピースPと螺子部材2との組合せ物を金型装置に組付けても良い。

このように、螺子部材2を組付けたピースPを金型装置に口縁部1cによつてまたは螺子部材2を介して組付けた後、ピースPを螺子部材2を金型の一部とした状態で2軸延伸成形して本体1に成形し壜体を成形する。

すなわち、螺子部材2の本体1に対する離脱不能な組付きは、このピースPの本体1への2軸延伸成形によつて達成される。

本体1に対する螺子部材2の空転不能な組付け手段には種々の手段があるが、次にこれらの手段のうち代表的なものを説明する。

その1は（オ4図参照）螺子部材2の内周面に所望数の縦溝2bを削設しておき、ピースPの首部1b外周面に、螺子部材2をピースPに嵌装した際に縦溝2bにピッタリと嵌合する縦条1bを突設しておく構造である。

この構造の場合、螺子部材2の内径はピースPの首部1b外径とほぼ等しい値となつていて、螺子部材2をピースPに嵌装すると共に縦溝2bと縦条1b'とが嵌合し合うようにするのが良い。

オ2は（オ5図およびオ6図参照）螺子部材2の内周面にほぼ環状となつた凹部2cを形成しておき、ピースPの2軸延伸成形時に首部1bも半径方向に延伸成形し、この延伸成形によつて首部1bの一部を凹部2c内に陥没成形する構造である。

この構造の場合、螺子部材2の内径はピースPの首部1bの外径よりも或る程度大きくしておくのが良い。

これは、ピースPを2軸延伸成形する際に、螺子部材2がピースPの首部1bに接触していないのでピースPの首部1bも他の部分と同様に2軸延伸されて機械的強度が増大するためである。

オ3は、（オ7図参照）螺子部材2の下端縁2dを上下に凹凸する波形形状としておき、螺子部材2を金型の一部としてピースPが2軸延伸成形される際に、胴部1aの首部1bとの連接基部をこの下端縁2dに沿つて成形し、胴部1aの首部1bとの連接基部を波形となつた下端縁2dと嵌合させた構造とするものである。

この構造の場合、螺子部材2の内径がピースPの首部1bの外径と等しいかまたは大きいかということすなわち首部1bが2軸延伸成形されるか否かは全く問題とならず、下端縁2dと嵌合する本体1部分は2軸延伸成形されて機械的に充分な強度が与えられている胴部1aの首部1bとの連接基部であるので、本体1に対する螺子部材2の空転不能な組付け力は強力なものとなる。

なお、螺子部材2の肉厚は口縁部1cの外方への突出量と等しいかまたはこの突出量よりも大きいことは言うまでもない。

また、オ4図に示した構造に比べてオ5図およびオ6図に示した構造は首部1bを2軸延伸成形するのに高い圧力を必要とする難点がある反面、首部1bも2軸延伸成形されるので壜体の機械的強度の点からは優れた作用効果を発揮する。

さらに、オ7図に示した構造のものは、図示実施例の場合、連続した波形状となつているが、この下端縁2dの凹凸は必ずしも連続した波形状とする必要はなく所望する数の凹部もしくは凸部を適当に形成すれば良いのである。

ただし、この凹部もしくは凸部は充分に角取りした構造で成形する必要がある。

以上の説明から明らかな如く、本発明はポリエチレンテレフタレート樹脂製の2軸延伸成形され

た本体1の首部1bに適当な材料によつて成形された螺子部材2を組付けた構造となつているので、ピースパの首部1b外周面に螺子を附形するとか、ピースパの2軸延伸成形によつて首部1bに螺子を成形する必要がないのでピースパおよび本体1の成形操作が極めて簡単となり、また2軸延伸成形されないことによつて機械的強度が充分であるとは言い難い首部1bに直接螺子を成形しないので本体1を傷つけることなく強力な螺子結合を得ることができると共に胴部1aに比べて透明度が劣る首部1bを螺子部材2でかくすことになるので壜体の外観の劣化を防止することができ、さらに単一の金型で多数のピースパを成形することができると共に螺子部材2の材質は全く自由に選定でき、さらにピースパの2軸延伸成形と同時に螺子部材2の本体1への離脱不能な組付けが達成される等ポリエチレンテレフタレート樹脂製壜体に関して多くの優れた作用効果を有するものである。

4.図面の簡単な説明

オ1図は本発明によるポリエチレンテレフタレート樹脂製壜体の構造の一実施例を示す縦断面図、オ2図およびオ3図は壜体の成形順序を示す一部の工程を示す要部縦断面図で、オ2図はピースに対する螺子部材の組付け前における状態図、オ3図はピースに対する螺子部材の組付け状態を示している。

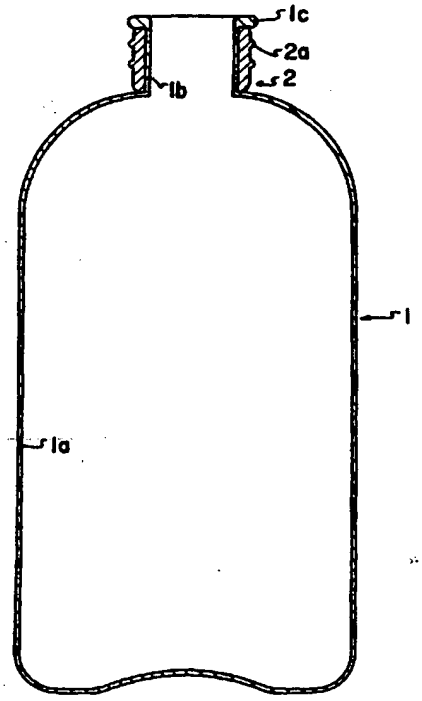
オ4図ないしオ7図は螺子部材の首部への空転不能な組付け構造を示す図で、オ4図は螺子部材の内周面に附設した係溝にピースの首部に突設した係条を嵌合させる構造の場合の要部縦断面図、オ5図およびオ6図は螺子部材の内周面に形成された凹部内に首部の一部を陥設させる構造を示す要部横断面図で、オ5図は首部の延伸成形前をそしてオ6図は首部の延伸後を示している。

オ7図は螺子部材の下端縁に凹凸を形成し、この凹凸に本体の一部を噛み合せた構造の要部正面図である。

符号の説明

1：本体、パ：ピース、1a：胴部、1b：首部、1c：口縁部、2：螺子部材、2a：螺条、2b：縦溝、2c：凹部、2d：下端縁

オ1図



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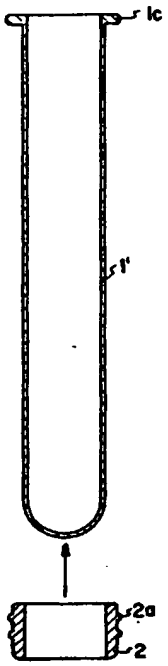
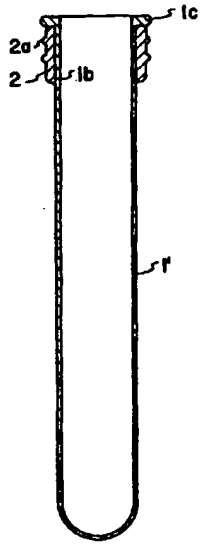
代理人（弁理士）鍋辺實治

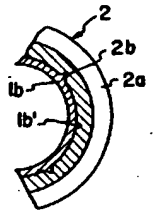
第2図



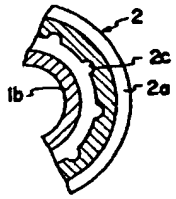
第3図



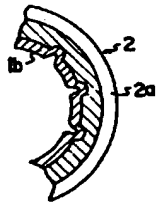
第4図



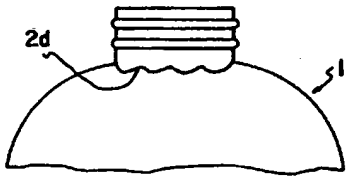
第5図



第6図



第7図



File 351:Derwent WPI 1963-2005/UD,UM &UP=200535
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004305970
WPI Acc No: 1985-132848/198522

Polyethylene terephthalate resin. bottle - with threaded neck capped with plastic resin. or metal cap (J5 30.8.77)
Patent Assignee: YOSHINO KOGYOSHO CO LTD (YOSK)
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 85017693	B	19850504	JP 7618598	A	19760223	198522	B
JP 52103283	A	19770830				198522	

Priority Applications (No Type Date): JP 7618598 A 19760223
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 85017693	B		4		

Abstract (Basic): JP 85017693 B
A polyethylene terephthalate resin bottle has a threaded neck capped with a plastic resin or metal screw cap. It is made in a 2-axial blow forming method using a die. (J52103283-A)
0/7
Derwent Class: A23; A92
International Patent Class (Additional): B29C-049/20; B29L-022/00
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